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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT PAPER NUMBER

2834

DATE MAILED: 03/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/619,847

Applicant(s)

PEI ET AL.

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 July 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 11-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 11-44 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Hagood et al. (US 6,048,622). Hagood shows (fig. 1A) a transducer (14) for converting between mechanical and electrical energy, the transducer comprising: at least two electrodes (20, 20'); and a polymer (18) arranged in a manner which causes a portion of the polymer to deflect in response to a change in electric field and/or arranged in a manner which causes a change in electric field in response to deflection of the polymer (18), wherein the polymer (18) includes an additive (see col. 8, ll. 24-29).

The additive improves at least one of polymer dielectric breakdown strength, maximum linear strain, dielectric constant, elastic modulus (e.g. Hagood notes "elastic qualities" at col. 8, ll. 24-29), response time, and actuation voltage.

The additive comprises at least one of a plasticizer, an antioxidant, and a high dielectric constant particulate (col. 8, l. 27-29).

The additive improves one of the ability of the polymer to convert between mechanical and electrical energy and the adhesion of the polymer.

The transducer is included in an actuator, a generator, and a sensor (col. 1, ll. 51, 52).

The transducer is included in one of a robot, a motor (which is functionally equivalent to an actuator), a pump, and a toy.

Claims 1, 2, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Scheinbeim et al. (US 5,369,995). Scheinbeim shows (fig. 1A) a transducer for converting between mechanical and electrical energy, the transducer comprising: at least two electrodes (14); and a polymer (16) arranged in a manner which causes a portion of the polymer to deflect in response to a change in electric field and/or arranged in a manner which causes a change in electric field in response to deflection of the polymer (16), wherein the polymer (16) includes an additive (see col. 2, ll. 60+).

The additive improves at least one of polymer dielectric breakdown strength, maximum linear strain, dielectric constant, elastic modulus (e.g. Scheinbeim notes additives are used "according to each specific requirement" at col. 3, lines 1, 2) response time, and actuation voltage.

The polymer is elastically pre-strained (col. 3, lines 28-31).

The transducer is included in an actuator, a generator, and a sensor (see ABSTRACT).

Claims 1, 2, 9 and 10 are rejected under 35 U.S.C. 102(a) as being anticipated by Yamaguchi et al. (US 6,048,622). Yamaguchi shows (fig. 1b) a transducer for

converting between mechanical and electrical energy, the transducer comprising: at least two electrodes (4, 6, 8); and a polymer (5) arranged in a manner which causes a portion of the polymer to deflect in response to a change in electric field and/or arranged in a manner which causes a change in electric field in response to deflection of the polymer (5), wherein the polymer (5) includes an additive (clearly anticipated at col. 7, ll. 6-10).

The additive improves at least one of polymer dielectric breakdown strength, maximum linear strain ("improved piezoelectric/electrostrictive properties"), dielectric constant, elastic modulus, response time, and actuation voltage.

The transducer is included in an actuator, a generator, and a sensor.

The transducer is included in one of a robot, a motor (equivalent to actuator), a pump, and a toy.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hagood et al. (US 6,048,622). Given the invention of Hagood et al. as noted above, his additive options are not specifically named. It would have been obvious to one having ordinary skill in the art at the time the Hagood et al. invention was made to employ any of the equivalent additives that the Applicants note in their claims since it has been held

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to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice. *In re Leshin*, 125 USPQ 416.

***Election/Restrictions***

Though traversed the restriction requirement is maintained by the Examiner for the reasons cited in the original Election/Restriction Requirement.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

*tmd*  
tmd

March 6, 2003

*Thomas M. Dougherty*  
THOMAS M. DOUGHERTY  
PATENT EXAMINER  
GROUP 2100  
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